



Food and Drug Administration  
10903 New Hampshire Avenue  
Document Control Center – WO66-G609  
Silver Spring, MD 20993-0002

AALTO SCIENTIFIC, LTD.  
ROBERT BURDA  
REGULATORY AFFAIRS MANAGER  
1959 KELLOGG AVE.  
CARLSBAD CA 92008

January 23, 2015

Re: K143571  
Trade/Device Name: Audit® MicroControls™ Linearity LQ Cystatin-C  
Regulation Number: 21 CFR 862.1660  
Regulation Name: Quality control material (assayed and unassayed)  
Regulatory Class: I, Reserved  
Product Code: JJX  
Dated: December 12, 2014  
Received: December 17, 2014

Dear Mr. Robert Burda:

We have reviewed your Section 510(k) premarket notification of intent to market the device referenced above and have determined the device is substantially equivalent (for the indications for use stated in the enclosure) to legally marketed predicate devices marketed in interstate commerce prior to May 28, 1976, the enactment date of the Medical Device Amendments, or to devices that have been reclassified in accordance with the provisions of the Federal Food, Drug, and Cosmetic Act (Act) that do not require approval of a premarket approval application (PMA). You may, therefore, market the device, subject to the general controls provisions of the Act. The general controls provisions of the Act include requirements for annual registration, listing of devices, good manufacturing practice, labeling, and prohibitions against misbranding and adulteration. Please note: CDRH does not evaluate information related to contract liability warranties. We remind you, however, that device labeling must be truthful and not misleading.

If your device is classified (see above) into either class II (Special Controls) or class III (PMA), it may be subject to additional controls. Existing major regulations affecting your device can be found in the Code of Federal Regulations, Title 21, Parts 800 to 898. In addition, FDA may publish further announcements concerning your device in the Federal Register.

Please be advised that FDA's issuance of a substantial equivalence determination does not mean that FDA has made a determination that your device complies with other requirements of the Act or any Federal statutes and regulations administered by other Federal agencies. You must comply with all the Act's requirements, including, but not limited to: registration and listing (21 CFR Part 807); labeling (21 CFR Parts 801 and 809); medical device reporting (reporting of medical device-related adverse events) (21 CFR 803); good manufacturing practice requirements as set forth in the quality systems (QS) regulation (21 CFR Part 820); and if applicable, the electronic product radiation control provisions (Sections 531-542 of the Act); 21 CFR 1000-1050.

If you desire specific advice for your device on our labeling regulations (21 CFR Parts 801 and 809), please contact the Division of Industry and Consumer Education at its toll-free number (800) 638 2041 or (301) 796-7100 or at its Internet address <http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm>. Also, please note the regulation entitled, “Misbranding by reference to premarket notification” (21 CFR Part 807.97). For questions regarding the reporting of adverse events under the MDR regulation (21 CFR Part 803), please go to <http://www.fda.gov/MedicalDevices/Safety/ReportaProblem/default.htm> for the CDRH’s Office of Surveillance and Biometrics/Division of Postmarket Surveillance.

You may obtain other general information on your responsibilities under the Act from the Division of Industry and Consumer Education at its toll-free number (800) 638-2041 or (301) 796-7100 or at its Internet address <http://www.fda.gov/MedicalDevices/ResourcesforYou/Industry/default.htm>.

Sincerely yours,

**Katherine Serrano -S**

For : Courtney H. Lias, Ph.D.  
Director  
Division of Chemistry and Toxicology Devices  
Office of In Vitro Diagnostics  
and Radiological Health  
Center for Devices and Radiological Health

Enclosure

## Indications for Use

510(k) Number (if known)

k143571

Device Name

Audit® MicroControls™ Linearity LQ Cystatin-C

Indications for Use (Describe)

The Linearity LQ Cystatin-C is an assayed quality control material intended to simulate human patient samples for use in determining linearity, calibration verification, and the verification of reportable range for the Cystatin-C analyte.

The Linearity LQ Cystatin-C is for In Vitro Diagnostic use only.

Type of Use (Select one or both, as applicable)

☒ Prescription Use (Part 21 CFR 801 Subpart D)

☐ Over-The-Counter Use (21 CFR 801 Subpart C)

### CONTINUE ON A SEPARATE PAGE IF NEEDED.

This section applies only to requirements of the Paperwork Reduction Act of 1995.

**\*DO NOT SEND YOUR COMPLETED FORM TO THE PRA STAFF EMAIL ADDRESS BELOW.\***

The burden time for this collection of information is estimated to average 79 hours per response, including the time to review instructions, search existing data sources, gather and maintain the data needed and complete and review the collection of information. Send comments regarding this burden estimate or any other aspect of this information collection, including suggestions for reducing this burden, to:

Department of Health and Human Services  
Food and Drug Administration  
Office of Chief Information Officer  
Paperwork Reduction Act (PRA) Staff  
[PRASStaff@fda.hhs.gov](mailto:PRASStaff@fda.hhs.gov)

*"An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB number."*

## **510(k) Summary**

### **A. Submitter**

Aalto Scientific, Ltd.  
1959 Kellogg Ave.  
Carlsbad, CA 92008  
Telephone: (760) 431-7922  
Fax: (760) 431-6942

#### Contact Person

Robert Burda  
Regulatory Affairs Manager  
Telephone: (760) 431-7922 ext. 134  
Email: [rburda@aaltoscientific.com](mailto:rburda@aaltoscientific.com)

#### Date of Summary Preparation

December 12, 2014

### **B. Device Identification**

Product Trade Name: Audit<sup>®</sup> MicroControls<sup>™</sup> Linearity LQ Cystatin-C  
Common Name: Single (Specified) Analyte Controls, All Kinds (Assayed and Unassayed)  
Review Panel: Clinical Chemistry  
Device Classification: Class I, Reserved  
Product Code: JJX  
Regulation Number: 21CFR862.1660

### **C. Device to Which Substantial Equivalence is Claimed**

K130157 Audit<sup>®</sup> MicroCV<sup>™</sup> Beta-Hydroxybutyric Acid Linearity Set

### **D. Intended Use**

The Linearity LQ Cystatin-C is an assayed quality control material intended to simulate human patient samples for use in determining linearity, calibration verification, and the verification of reportable range for the Cystatin-C analyte.

The Linearity LQ Cystatin-C is for In Vitro Diagnostic use only.

### **E. Technical Characteristics Compared to Predicate Device**

<b>Characteristics</b>	Audit <sup>®</sup> MicroControls™ Linearity LQ Cystatin-C (New Device)	Audit <sup>®</sup> MicroCV™ Beta- Hydroxybutyric Acid Linearity Set (Predicate Device, K130157)
<b>Intended Use</b>	<p>The Linearity LQ Cystatin-C is an assayed quality control material intended to simulate human patient samples for use in determining linearity, calibration verification, and the verification of reportable range for the Cystatin-C analyte.</p> <p>The Linearity LQ Cystatin-C is for In Vitro Diagnostic use only.</p>	<p>The Audit<sup>®</sup> MicroCV™ Beta-Hydroxybutyric Acid Linearity Set is an assayed quality control material consisting of five levels of human based serum. Each level contains Beta-Hydroxybutyric Acid. These five levels demonstrate a linear relationship to each other for Beta-Hydroxybutyric Acid. It is intended to simulate human patient serum samples for purpose of determining linearity, calibration verification and verification of reportable range for Beta-Hydroxybutyric Acid.</p> <p>The product is intended for use with quantitative assays on the indicated analyzer provided in the labeling and may be used as quality control material for Beta-Hydroxybutyric Acid. When used for quality control purposes, it is recommended that each laboratory establish its own means and acceptable ranges and use the values provided only as guides. The Audit<sup>®</sup> MicroCV™ Beta-Hydroxybutyric Acid Linearity Set should not be used for calibration or standardization of the Beta-</p>

		Hydroxybutyric Acid assay. The Audit® MicroCV™ Beta-Hydroxybutyric Acid Linearity Set is “For In Vitro Diagnostic Use Only”.
<b>Number of Levels per Set</b>	5	5
<b>Contents</b>	5x1ml	5x1ml
<b>Matrix</b>	Human Based Serum and bovine based serum	Human Based Serum
<b>Type of Analytes</b>	Clinical Chemistry	Clinical Chemistry
<b>Form</b>	Liquid	Liquid
<b>Storage</b>	2-8°C	2-8°C
<b>Open Vial Stability</b>	30 days at 2-8°C	40 days at 2-8°C
<b>Sterile</b>	No	No
<b>Analytes</b>	Cystatin-C	Beta-hydroxybutyric acid
<b>Number of Analytes per Vial</b>	1	1

## F. Device Description

The Audit® MicroControls™ Linearity LQ Cystatin-C product is an in-vitro diagnostic device consisting of one set of five levels of liquid, linearity/QC material. For the set there are five levels labeled A, B, C, D and E. The set contains 1ml for each level. The set contains the Cystatin-C analyte and additives in human and bovine based serum. Materials of human origin used in the manufacture of this linearity set have been tested using FDA approved methods and are found to be non-reactive for HbsAg and antibodies to HCV and HIV-1/2.

## G. Value Assignment/Linearity

Analyte value assignment for Level A through Level E was performed on Beckman Immage for the Cystatin-C analyte using the corresponding reagent. The Cystatin-C analyte was measured multiple times. The mean value of the Cystatin-C analyte was used to establish target concentration value at each level. All supporting data is retained on file at Aalto Scientific, Ltd.

AMR

0.4-7.5mg/L

## **H. Summary of Performance Data**

Stability studies have been performed to determine the open vial stability and shelf life for Audit<sup>®</sup> MicroControls<sup>™</sup> Linearity LQ Cystatin-C.

### Shelf Life-Accelerated Stability

Accelerated stability studies were conducted to establish the shelf life stability claims. All supporting data is retained on file at Aalto Scientific, Ltd. Acceptance criteria were met to support the product claims as follows:

*Shelf Life:* 3 years, when stored unopened at 2-8° C.

### Shelf Life-Real Time Stability

Vials from two lots of finished product are stored at 2-8°C (real time vials) and -80°C (Day0 vials). Samples are taken at two different time points. The analyte values from the real time vials are compared to the Day0 vials (both tested in duplicate). The product is determined to meet its predicted shelf life if the % difference of the real time mean values compared to the Day0 mean value is within the acceptance criteria. All supporting data is retained on file at Aalto Scientific, Ltd.

*Note:* Real time studies are ongoing to support the shelf life of this product.

### Open Vial-Accelerated Stability+Real Time Stability

Real time stability studies were conducted at the end of accelerated stability studies to establish the open vial stability claims. All supporting data is retained on file at Aalto Scientific, Ltd. Acceptance criteria were met to support the product claims as follows:

*Open Vial Stability:* Once a vial has been opened, the product will be stable for 30 days when stored tightly capped at 2-8° C.

## **I. Expected Values**

Analyte value assignment was performed for Audit<sup>®</sup> MicroControls<sup>™</sup> Linearity LQ Cystatin-C on Beckman Immage using the corresponding reagents for Cystatin-C. Cystatin-C was measured multiple times and the mean value was used to establish target concentration values at each level. The target ranges were calculated as  $\pm 10\%$  of the target value.

All supporting data is retained on file at Aalto Scientific, Ltd. Product claims are as follows:

Cystatin-C (mg/L)/Beckman Immage									
Level A		Level B		Level C		Level D		Level E	
Target value	Target Range	Target value	Target Range	Target value	Target Range	Target value	Target Range	Target value	Target Range
0.649	0.584-0.714	2.33	2.09-2.56	4.10	3.69-4.51	5.65	5.08-6.21	7.15	6.44-7.87

## **J. Traceability**

Materials are obtained from internally qualified vendors and are subject to an internal quality control process. Raw material information is retained on file at Aalto Scientific, Ltd.

## **K. Conclusions**

Based upon the purpose of the device, the descriptions and labeling of the predicate device, the safety and efficacy, and the stability data generated, the product is substantially equivalent to the predicate device.